SANTA CRUZ BIOTECHNOLOGY, INC.

VDR siRNA (h): sc-106692

BACKGROUND

The active metabolite of vitamin D modulates the expression of a wide variety of genes in a developmentally specific manner. This secosteroid hormone can up- or downregulate the expression of genes involved in a diverse array of responses such as proliferation, differentiation and calcium homeostasis. 1,25-$(OH)_2$-vitamin D_3 exerts its effects through interaction with the vitamin D receptor (VDR), a member of the superfamily of hormone-activated nuclear receptors. In its ligand-bound state, the VDR forms heterodimers with the 9-*cis* retinoic acid receptor, RXR, and affects gene expression by binding specific DNA sequences known as hormone response elements, or HREs. In addition to regulating the above-mentioned cellular responses, 1,25-$(OH)_2$-vitamin D_3 exhibits antiproliferative properties in osteosarcoma, melanoma, colon carcinoma and breast carcinoma cells.

CHROMOSOMAL LOCATION

Genetic locus: VDR (human) mapping to 12q13.11.

PRODUCT

VDR siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see VDR shRNA Plasmid (h): sc-106692-SH and VDR shRNA (h) Lentiviral Particles: sc-106692-V as alternate gene silencing products.

For independent verification of VDR (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-106692A, sc-106692B and sc-106692C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

VDR siRNA (h) is recommended for the inhibition of VDR expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

VDR (D-6): sc-13133 is recommended as a control antibody for monitoring of VDR gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor VDR gene expression knockdown using RT-PCR Primer: VDR (h)-PR: sc-106692-PR (20 µl, 468 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mooso, B., et al. 2010. Androgen receptor regulation of vitamin D receptor in response of castration-resistant prostate cancer cells to 1α-hydroxyvitamin D_5: a calcitriol analog. Genes Cancer 1: 927-940.
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4. Andrukhov, O., et al. 2014. Both 25-hydroxyvitamin-D_3 and 1,25-dihydroxyvitamin-D_3 reduces inflammatory response in human periodontal ligament cells. PLoS ONE 9: e90301.
5. Thangamani, S., et al. 2015. Cutting edge: progesterone directly upregulates vitamin D receptor gene expression for efficient regulation of T cells by calcitriol. J. Immunol. 194: 883-886.
6. Chae, Y.J., et al. 2016. Vitamin D receptor-mediated upregulation of CYP3A4 and MDR1 by quercetin in Caco-2 cells. Planta Med. 82: 121-130.
7. Lu, X., et al. 2017. Effects of 1,25 and 24,25 vitamin D on corneal epithelial proliferation, migration and vitamin D metabolizing and catabolizing enzymes. Sci. Rep. 7: 16951.
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9. Wang, X., et al. 2019. Participation of vitamin D-upregulated protein 1 (TXNIP)-ASK1-JNK1 signalosome in the enhancement of AML cell death by a post-cytotoxic differentiation regimen. J. Steroid Biochem. Mol. Biol. 187: 166-173.
10. Wang, X., et al. 2020. Differentiation agents increase the potential AraC therapy of AML by reactivating cell death pathways without enhancing Ros generation. J. Cell. Physiol. 235: 573-586.
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RESEARCH USE

For research use only, not for use in diagnostic procedures.